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THESIS

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PROCUREMENT STRATEGY FOR OY SCANTARP AB

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<p>Abstract</p> <p>The purpose of this thesis was to create a procurement strategy for Oy Scantarp Ab, including two category strategies for main raw materials of the coating process. The focus was on direct purchases. In addition to this, other goals for project were to gather existing instructions for purchasing process and large quantity of tacit knowledge on paper. Validity of the strategy was determined to be five years.</p> <p>Oy Scantarp Ab is a mid-size company operating in Kuopio. Scantarp employed 75 persons while creating the strategy in spring 2016. The main business of the company is to produce PVC coated fabrics and converted products for several end uses in civil and military markets. The company's roots are in the 1950s and it's still the leading manufacturer of technical textiles in Scandinavia.</p> <p>The research method being used in this study was qualitative research. With the research material collected and created in this action research study, it was possible to create an exact procurement strategy which serves Scantarp's needs.</p> <p>Due to the flatness of Scantarp as an organization, acquiring information was not a problem. A big number of data was available ready on ERP system.</p> <p>Tacit knowledge and information, based on writer's experience played a big role in creating the strategy. Thanks for collected information during writer's several-year-career at Scantarp, it was possible to create a detailed and tailored strategy. The thesis gave a splendid channel for spreading tacit knowledge in-house as well.</p> <p>As a result, a detailed procurement strategy, including two category strategies for main raw materials was created and they were approved by the management of Oy Scantarp Ab.</p> <p>The strategy includes a lot of information to support operational purchasing and because of its confidential nature most of the details were left out of this public report.</p> <p>Targets set will secure raw material availability and continuity of operations even on exceptions. The strategy is planned to be adaptable and it therefore can be modified when operating under constant change and in an turbulent environment.</p>			
<p>Keywords</p> <p>PMM (Procurement Maturity Model), procurement strategy, strategic purchasing, category strategy</p>			

FOREWORDS

Too often procurement has been considered as a statutory thing and it is thought to just cause costs. It is clear that it is not so. Especially on times when the global economy is suffering, the importance of effective procurement gets the attention that it deserves.

Today it can be said that many times the result of the company is done with effective procurement and not with successful sales stories. This everyone can figure out easily by asking: Which is easier, to reduce costs, or to increase sales price”?

There are many ways to improve procurement of a company. The best way to do it is to create procurement strategy to guide purchasing in operational, tactical and strategic level.

The strategy does not have to be too wide and it should not be created only because it should exist. It should be created to serve the needs of each company. Even the smallest companies should create the procurement strategy right from the start.

I believe that five years span for the validity of the strategy in this case is not too long or too short. The main task is to guide the procurement and not to absorb too much of its resources, especially when the organization is rather flat.

ABBREVIATIONS

PMM = PROCUREMENT MATURITY MODEL

ROP = RE ORDER POINT

SS = SAFETY STOCK

SWOT = STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS

EQUATIONS

$\sigma = \sqrt{LT}((Sd^2) + (S^2))$ = standard deviation during lead time

$SS = Z \times \sigma \sqrt{LT}$ = safety stock

$R = SS + DL$ = Re order point

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1 INTRODUCTION

The target was to create a procurement strategy for my employer Oy Scantarp Ab. The reason for creating the strategy was that first of all, it did not exist. Second, there was a lot of existing information waiting to be collected and written into one document. The procurement at Scantarp was effective already when this project was started, but there was a need for clarification and guidelines. At this point the strategy was limited to serve purchasing of main raw materials of the coating process. To be able to categorize purchases in more detail, two category strategies were needed.

The significance of this thesis is remarkable for the target company because the goal of the thesis, procurement strategy, will secure continuity of operations and availability of raw materials even on exceptions, which will contribute strongly to company's customer service and cost effectiveness.

I wanted to develop my expertise as a purchaser by studying the field intensively and by that, take the procurement step forward at Oy Scantarp Ab.

From my point of view as a procurement manager, there was a need for writing procurement strategy to give a clear message; how purchasing shall be operated on operative, tactical and strategical level.

The amount of tacit knowledge was so big that it was time to store the important and useful information.

1.1 The Research Method

The research method used was qualitative research. With this research method it was possible to understand the strategy creating process. My personal expertise has been exploited in this thesis. Some chapters in the theory part (pages 10-36) include personal aspects that can be considered reliable.

There were expectations about the results, based on earlier working experience, but they were not 100% clear due to limited earlier knowledge about the process of creating a procurement strategy. These expectations were guiding the learning throughout the study.

When collecting the material, it was clear that the quality of the material is the most important feature, not the amount of the data available. Quality in this research means reliability, validity and relevance.

The intention was to affect the client organization's way of operating. The action research method for planning and creating the strategy was used due to the fact that the researcher (I) is (am) participating into the everyday operations of the organization and the end process, the method is the most suitable one.

The process of action research was started by investigating the current status of the studied process and by examining all the factors that affect on the study. After all the data was gathered, it was possible to create a model how the organization should operate in the future. This model has to be evaluated and improved if it has been considered not effective.

Because the main target was to affect the organization's operations, it is important that the model's continuity is secured. The ideal situation would be that the model would operate as an independent process in the future.

The final achievement is that the intervention happens. This means that the model will really work and affect the organization's way of operating. In this study it means that the availability of raw materials will be secured and the continuity of procurement operations is ensured.

1.2 Oy Scantarp Ab

Oy Scantarp Ab is a middle-size company, located in Kuopio, Finland.

Scantarp produces PVC coated technical textiles for civil and military solutions and is the leader in the field in Northern Europe.

In addition to coating production, Scantarp can provide supportive solutions to customers by offering converting services and ready-made converted products. Scantarp has the converting department for producing civil and military products. These converted products vary from the simplest tarpaulin for covering firewood piles to highly demanding air supported domes for playing Tennis or Football.

PICTURE 1. Storage hall (<http://www.scantarp.fi/en/tuotteet/manufacturing/>).



PICTURE 2. Inflatable military tent (<http://www.scantarp.fi/en/tuotteet/defense-and-security/tents/>).



The roots of Scantarp are in the 60s when the production started with simple coating production and a low number of employees. Today Scantarp employs 75 people with a turnover of ca. 13 M€. The majority of the sales are exported and the main market area is Northern Europe.

All the production and R&D is made in Kuopio. Sales coverage spreads from Scandinavia down to Southern Europe. Agents and partners support the sales team.

End customers are storage hall manufacturers, tarpaulin traders, defence forces, engineering offices, car manufacturers, advertisers etc. The customer purchase coated fabrics or ready converted products such as tarpaulins and storage hall covers.

Scantarp is a ISO 9001 and AQAP 2110 certified company. Scantarp takes part in Responsible care –program, established by the Industry of Chemistry in Finland. Scantarp also follows European REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) regulations.

2 THE ROLE OF PROCUREMENT

The role of procurement has lived on constant change over decades. Every decade it has had its own characteristic nature which always has reflected the economic status of time. Over the past five years the role has lived maybe the most dramatic change since the great depression in 1929. Yet the role has lived on change, the role of a strategic way of thinking has become more and more important every decade.

2.1 Decades of Change in Procurement

According to Mr. Kraljic, the 1980s was the century of turning the “strategic leaf”. Heavily transactional purchasing started to turn into market requirement understanding (Kraljic, 1983).

The 1990s was the golden decade for global sourcing and outsourcing. Another major movement was that the role of procurement was slowly considered as a strategic function in organizations. The status of procurement personnel was recognized to be less rewarded as their colleagues in other departments and to prevent this trend from continuing, the purchasing activities were centralized more and more to reducing total costs and not only the cost per unit.

If not earlier, at the latest at the turn of the 21st century it was found that it was essential to make a risk analysis of procurement. Global threats of supply chain like child labor, pollution, workers’ rights etc. were recognized and ethical and sustainable way of thinking raised its’ head.

Hence risks and global threats were recognized, after a long lasting recession, which started in 2010, an opposite phenomenon took place. When focusing on cost saving, other important factors were not that important anymore. These factors are for example risk, sustainability and overall value of business.

Even though recession is globally harmful, it gives the opportunity to develop procurement by enhancing innovations and efficiency (Carlos Mena, Martin Christopher and Remko van Hoek et. al, 27).

2.2 Procurement Expertise – Impact on Profitability

One wise tradesman said once: “Growth is created by selling, but margins by purchasing”. I believe this makes sense. It is not easy to invent a product or service that one could sell continuously without worrying about costs.

Most of the companies face tricky situations when a client wants to have a better price and the margin is already too low to give any discount. What to do? To change the sold article structure or service or try to find another customer who's willing to pay the desired price?

These are the things that come up first too often. On many occasions the only possibility is to reduce costs.

Naturally cost structure of the product or service has to be considered before starting to sell it, but what if the surroundings change? Heavy competition suddenly comes outside the EU, or general demand of the sold article / service decreases for a reason or another. This is the point where the efficiency of company's procurement is measured.

McKinsey and Supply Management Institute's research investigated over 200 companies procurement in action and the results were clear. Procurement has a strong influence on the profitability of a company.

The research revealed that the best companies EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization) were more than 5% better than the weakest ones.

According to McKinsey and Supply Management Institute's research, there are three main factors which separated the best from the worst companies

1. In best companies the training/education of personnel was taken seriously and the training aimed to modern procurement know-how. The recruitment aimed at acquiring skilled procurement specialists.
2. The best companies focused on total cost management and they had set clear targets to procurement organization. The success was also measured constantly.
3. The co-operation of procurement was not independent, but was operating in close co-operation with other units. Procurement organization was called to participate in everyday decisions as well.

The result was that the best performing companies took procurement seriously and considered it to be one of the key processes. Procurement and supplier management were seen to be highly important what comes to the future of the company.

Companies on the bottom considered procurement as a supportive function and barely saw any potential in it. The main focus was on cost savings and not on development. Measurements were hardly done.

This large study showed that when a company puts effort on developing procurement, it pays itself back (Iloranta, Pajunen-Muhonen et.al, 23 / Reinecke et al. 2007).

3 PROCUREMENT MATURITY MODEL (PMM)

Procurement maturity model is a tool for analyzing the status of company's procurement. How procurement is performing, how well the company exploits the benefits of professional procurement, have targets been set for procurement organization, is procurement in line with other organization → how mature it is?

The four stages of PMM are:

Transactional procurement

- procurement not recognized as a strategic function
- serves only basic needs for materials and services (decentralized function)
- operative actions are the main functions of procurement
- narrow understanding of total cost
- no will for professional development
- more centralized functions are needed for development.

Cost-driven procurement

- cost minimization is the key target
- more strategic view, but not recognized as a key function
- personnel analytically skilled
- personnel comes with good negotiation and contracting skills
- TCO (total cost of ownership) thinking takes place
- "big picture" cannot be seen (risk, value, innovation and growth cannot be seen).

Integrated procurement

- clear strategy aligned with the company's official one
- focus on integrating and aligning strategies across the supply chain
- procurement professionals lead procurement with influencing skills reaching also outside the organization (emotional and relational skills)
- procurement aligned with strategy has to move to formulating strategy in sync with the company's other functions.

Leading procurement

- strategy shapes function
- searches for sustainable, competitive advantage
- highly skilled professionals lead procurement.

These four stages of procurement reflect how the role of procurement may vary in organizations (Carlos Mena, Martin Christopher and Remko van Hoek et. al, 27-32).

On the bottom it has been considered only as causing costs and eating resources. When the cost saving potential has been identified, procurement gets more analytical and starts to seek new ways for reducing costs.

When the strategic importance has been recognized, it starts to get more space on company's strategic decision making process. Professionals start to lead procurement and the roots slowly spread into customer relations as well. Procurement has been considered as one of the key processes.

When it has been recognized that procurement is an essential process for company's operation, it starts to shape the whole strategy. It is thought that margins are achieved by total cost thinking and not only by the sales price.

The longer the roots spread in the company, the greater role it gets. The greater role it has, the greater success the company achieves (Carlos Mena, Martin Christopher and Remko van Hoek et. al, 31).

TABLE 1. Procurement Maturity Model (Carlos Mena, Martin Christopher and Remko van Hoek et. al, 28-29).

	Transactional	Cost driven	Integrated	Leading
Alignment/ involvement in strategy	<ul style="list-style-type: none"> no strategic orientation or involvement 	<ul style="list-style-type: none"> independent from organization's strategy 	<ul style="list-style-type: none"> supports organizational strategy close alignment 	<ul style="list-style-type: none"> influences organizational strategy provides strong input to values and strategies
Scope of activities	<ul style="list-style-type: none"> clerical in nature one-off negotiations with suppliers order processing hardly any tendering 	<ul style="list-style-type: none"> commercial activities tendering negotiation getting the deal! 	<ul style="list-style-type: none"> active in make-buy decisions outsourcing global sourcing focus on strategic sourcing relationship management and supplier development 	<ul style="list-style-type: none"> end-to-end supply chain management few areas of external spend untouched relationship management and supplier development
Relationship management (external and internal)	<ul style="list-style-type: none"> no supplier relationship management (SRM) no engagement with other functions 	<ul style="list-style-type: none"> limited SRM moderate integration with internal functions 	<ul style="list-style-type: none"> portfolio approach to relationships engagement in SRM extensive internal integration 	<ul style="list-style-type: none"> seen as customer of choice by suppliers engage with other stakeholders close internal alignment
Use of technology	<ul style="list-style-type: none"> ad hoc use of IT use of spreadsheets 	<ul style="list-style-type: none"> automation of clerical activities to reduce cost 	<ul style="list-style-type: none"> investments in ICT e-procurement 	<ul style="list-style-type: none"> extensive use of e-procurement + internet technologies

TABLE 1. Page 2. Procurement Maturity Model (Carlos Mena, Martin Christopher and Remko van Hoek et. al, 28-29).

	Transactional	Cost driven	Integrated	Leading
Skills and knowledge of people	<ul style="list-style-type: none"> clerical technical skill gaps some training provided 	<ul style="list-style-type: none"> technical competence negotiation and commercial skills training provided 	<ul style="list-style-type: none"> professionalized highly technical competence good project management skills systematic integration of training plans 	<ul style="list-style-type: none"> professionalized highly technical competence transformational and leadership skills continuous development attracts top talent
Key performance indicators (KPIs)	<ul style="list-style-type: none"> no structured targets and limited follow-up focus on number of purchase orders handled, volume metrics and order process compliance 	<ul style="list-style-type: none"> targets and reviews focus on financial results focus on price reductions and contract coverage 	<ul style="list-style-type: none"> balanced Scorecard focus on total cost of ownership (TCO) and business alignment 	<ul style="list-style-type: none"> comprehensive Balanced Scorecard continuous monitoring focus on TCO, innovation, sustainability and continuous improvement
How visible is procurement?	<ul style="list-style-type: none"> not prominent 	<ul style="list-style-type: none"> elevated profile based on savings potential 	<ul style="list-style-type: none"> highly visible internally and externally 	<ul style="list-style-type: none"> internally procurement is seen as a driver of competitive advantage supply chain champion

Table 1 shows how each stage is described by the indicators left.

4 STRATEGIC PROCUREMENT

Strategic procurement adds value. It does not only reduce costs. Organizations in general spend about 50% of their sales revenues on goods and services. The number may be a lot higher, for example in Walmart case. Walmart spends not less than 75% of its revenues in sourcing sellable products to end customers. In this case the fact is that every Pound saved in purchasing equals to about 3£ in additional sales (CAPS Research, 2012 /Carlos Mena, Martin Christopher, Remko van Hoek et. al, 20).

A properly led company has determined the goals and targets for its operation in its strategy. Strategic procurement's role is to operate aligned with company's strategy and aim to reach the targets and goals it has set. Best results are achieved by close co-operation with other sectors of the company. Every sector is involved into procurement somehow and therefore it is important that each sector recognizes the targets and supports procurement in achieving the targets and goals.

According to Strategic procurement and supply chain management book (Baily, Crocker, Jessop and Jones), on most cases, strategic procurement has usually been divided into three levels

Strategic level's main task is to lead and guide procurement in

- searching new suppliers
- planning the procurement
- creating guidelines and policies
- researching.

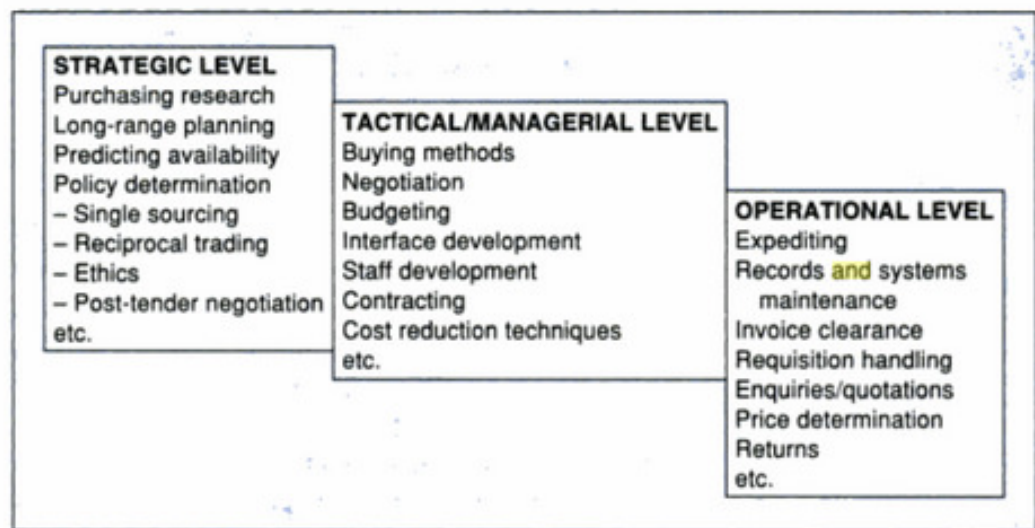
Tactical level is usually the one that is in contact with the suppliers most and maintains supplier relations by

- negotiating
- budgeting
- contracting
- creating effective purchasing techniques.

Operational level handles routine processes by

- handling purchase invoices
- sending purchasing orders
- calling products off
- returning claimed goods.

TABLE 2. The Scope of the purchase function (Baily, Farmer, Crocker, Jessop and Jones et.al, 36).



Strategic procurement has been taking place in every day's strategic decision making. The reasons below tell why it has got its place in the table.

- Purchasing is seen as an adding value process, not only cost reducing
- Purchasing can survive in a turbulent environment where rapid product innovations come up
- Material and information flow integration have moved into holistic view
- Recognition of supplier involvement's relation to efficiency and effectiveness increases
- TCO (total cost of ownership) and strategic cost of supply have been gaining ground from short-term price evaluation
- Growth recognition in purchased materials and services
- Profit potential recognition in purchasing.

(Baily, Farmer, Crocker, Jessop and Jones et. al, 36).

4.1 Procurement Strategy

Procurement strategy is an operational strategy. Even though it is a part of the big picture, it shall be planned to lead procurement. A well planned procurement strategy ensures effective purchasing even in the most turbulent operating environment. Procurement strategy shall be planned to be adaptive and it should be able to be modified during its validity. Procurement strategy has also to be aligned with the company's overall strategy and it has to communicate internally and externally.

4.2 Steps of Creating Procurement Strategy

There are five main steps in creating the strategy

1. Set goals and targets
2. Analyze situation
3. Develop procurement strategy
4. Implement procurement strategy
5. Learn and Improve

(Carlos Mena, Martin Christopher and Remko van Hoek et. al, 31).

1. Goals and targets

Procurement strategy has to give a clear message of what it wants to achieve. What are the main areas that it focuses on? On cost savings, on securing availability, on finding new suppliers? Goals and targets have to be aligned to the company's overall strategy.

2. Analysis

To be able to create a procurement strategy, it is necessary to evaluate the status of the company's procurement process.

According to Strategic procurement and supply chain management book (Baily, Farmer, Crocker, Jessop and Jones), there are several tools for analyzing:

Environmental

- PEST (political, economic, social, technological)
- SWOT (strengths, weaknesses, opportunities, strengths)
- Porter's five forces
- Competitor Analysis

Competitive position

- Strategic group analysis
- Competitor Analysis.

Resource analysis, competencies and strategic capabilities

- Value Chain analysis
- Resource audit
- Core business.

Comparative analysis

- Historical and financial analysis
- Benchmarking.

Organizational analysis

- SWOT analysis
- BCG (Boston Consulting Group) analysis
- Critical success factors (CSFs).

Stakeholders' perceptions

- Ethical considerations
- Stakeholder mapping
- Mission statements
- Culture
- Paradigms.

Maybe the mostly used method is SWOT analysis which is a general tool for revealing the current status of a company (Baily, Farmer, Crocker, Jessop and Jones et. al, 43).

3. Developing the procurement strategy

At development stage the first sketch of the strategy is formed. It is a stage for defining, prioritizing and determining the components and factors that are needed to create the strategy.

Definition of key elements

At this stage key elements for achieving the goals are defined. There might be organizational and human factors, global sourcing and supplier relations related factors.

These key elements can be

- Organization structure and governance
- Commodity / category strategy
- Supplier integration and collaboration
- Cost management
- Technology for procurement
- Talent management
- Global sourcing and supply
- Standardization and complexity reduction
- Sustainability.

Each procurement strategy is unique and does not contain all the elements listed above. Each strategy has to be planned to serve that specific company that is has been created for and therefore it may not be crucial to include every element into to the strategy.

Identification

At identification stage company identifies all the necessary factors it needs for achieving the strategic goal of procurement. The most effective way to get ideas out is to call a procurement team for a brainstorming session to identify the factors.

Prioritization

At prioritization stage it is evaluated, how big an impact each factor/project would have on performance. The company evaluates what are the most important things that need to be taken into account and where it wants to focus in the strategy.

Shaping the strategy

After the development stage the company has all the information needed to form the shape of the strategy. It's crucial to shape it so that it can be modified afterwards easily. It also has to link to other units in the organization.

At this point the company has decided whether to categorize some areas of its procurement operations more detailed. To be able to create a more detailed strategy for example for raw materials, category strategy has to be created (Carlos Mena, Martin Christopher and Remko van Hoek et. al, 68-72).

4. Implementation

Execution stage of the procurement strategy integrates all the pieces of the strategy. In big companies the project may be huge and the implementation stage may need some resources to accomplish the project. Project management and planning tools are needed in most cases.

Implementing new procurement strategy is always a change in the organization. Management plays a big role in execution. It's also a change in a way of thinking and therefore educating and training stage has to be carried out well.

At implementation stage the whole organization adapts to the new model of procurement and after a while the benefits can be seen. This stage needs the whole organization's involvement (Carlos Mena, Martin Christopher and Remko van Hoek et. al, 73-76).

5. Learning and Improving

At learning and improving stage the company understands how well it succeeded in creating the strategy. How it was planned and implemented. Performance measurement is made against goals and targets.

There are three key activities in this last stage

1. Collecting evidence and measuring performance
2. Evaluating performance
3. Embedding and communicating learning

Collection of evidence and measurement of performance

To be able to evaluate the performance of procurement strategy, measurable objectives have to be examined. Do we achieve goals? Is there any delay? Are performance indicators right ones? Do we have realistic targets?

These are questions that come up at this stage. If a company wants to perform deep analysis of evidence and performance, Balanced Scorecard is the right tool to do it. It's a tool for aligning business activities to the vision and the strategy of the organization. In Balanced Scorecard the company asks questions about the status of the process. On the left there are goals set and on the right there are measures. The measure explains how to reach the goal (<http://balancedscorecard.org/Resources/About-the-Balanced-Scorecard>).

More information about balanced scorecard can be found for example from Balanced Scorecard Institute's web page (<http://balancedscorecard.org/Resources/About-the-Balanced-Scorecard>), or from Kaplan & Norton's books:

Kaplan, R S and Norton, D (1992) The balanced scorecard: Measures that drive performance, Harvard Business Review, 70, 71–79

Kaplan, R S and Norton, D P (1996a) The Balanced Scorecard: Translating strategy into action, 1st edn, Harvard Business Review Press, Boston, MA

Kaplan, R S and Norton, D P (1996b) Linking the balanced scorecard to strategy, California Management Review, 39, 53–79

Evaluation of performance

At evaluation stage, findings of the collection are analyzed. Did the procurement team succeed?

The procurement team shall evaluate the performance as a team. After reporting the findings to management, the whole procurement organization should meet and analyze the findings collectively. It's essential to celebrate the success when it exists and if the

goals and targets have not been achieved, the cause has to be identified and the process re-evaluated. The evaluation leads to continuous improvement because every time the procurement organization is forced to make a self-assessment.

Embedding and communicating learning

When performance has been evaluated, it's time to ask a question, how does the organization benefit from procurement team's learning? Especially what do external functions and operations benefit? How can it be seen that creating a procurement strategy was useful?

If the procurement strategy is well aligned with the organization's strategy, communication is effective and fast. The whole organization learns to exploit the benefits of a new strategical way of thinking what comes to procurement. Procurement team gets the attention it deserves and the results speak for themselves. Procurement strategy is worth of creating (Carlos Mena, Martin Christopher and Remko van Hoek et. al, 75-79).

4.3 Category Strategy

Organization's or company's purchases are divided into direct and indirect purchases.

Direct purchases are considered to be part of the production cost of a product or service, in other words *product related* purchases. They are calculated into the product's manufacturing cost directly. Product's budget cost comes from manufacturing and purchasing costs.

Indirect purchases are non-product related purchases for example maintenance, cleaning, and workwear.

These two can be called the main categories of organization's purchases. Each of them is usually categorized further to be able to focus on specific areas that are included in both main categories. *Direct* purchases may consist of for example fasteners and sheet metal parts. These two raw materials can be thought to be form a category of their own, if they form a remarkable share of company's purchases. *Indirect* purchases may consist of bought services and maintenance.

The purpose of category strategy is to divide purchases into smaller categories to be able to purchase as efficient as possible. Products or services of each category are analyzed article by article, by service by service and they are classified to important and not that important articles. In this way the company is able to focus on right areas in procurement to reduce costs and inventory and secure the availability.

4.4 Category Strategy Process

Category strategy has been thought to be an operating model that has been created by the teams or employees that are somehow involved in products that are being purchased. Category strategy creation process starts from determination and ends into evaluation and re-thinking (Iloranta & Pajunen-Muhonen et. al, 146-147).

Determining the category

The determination of category may be an easy thing, if the company is rather small and has already a clear portfolio of its raw materials. There may be only a few categories to be developed and created. In bigger companies there might be tens of main categories and hundreds of sub categories. When there is a big number of categories, the process shall be implemented carefully and with all the tools that are available. Determination is done by segmenting the purchases by the area or meaning. The segment can be based on external or internal factors.

Because segmentation is a large topic, the whole process is not described here, but the main segmentation types are listed:

- Segmenting by economic significance (ABC analysis)
- Segmenting by supplier base
- Segmenting by nature of competition and intense
- Segmenting by complexity of the purchased material or service
- Strategic segmentation (Peter Kraljic / Kraljic's matrix).

(Iloranta & Pajunen-Muhonen et. al, 147-148).

Maybe the most important segmentation tool is ABC analysis. It is a basic tool to find out the economic importance for each material / service. With this tool the company can start the categorization process.

Analyzing history

Historical analysis of purchases is essential. It's highly important to know how much of each article or service organization has purchased and how much it has spent on them. What suppliers were used and had the co-operation worked. Otherwise it is impossible to categorize purchased goods by usage or price (Iloranta & Pajunen-Muhonen et.al, 148).

Recognizing supplier markets

After choosing the preliminary category, supplier markets have to be recognized. What kind of suppliers are there? Are they domestic or do they operate abroad? Who could be the best suppliers for this category? (Iloranta & Pajunen-Muhonen et.al, 148).

Re-thinking the need

At this stage it's time to take a look at the decisions made earlier. Has R&D made right supplier choices? Has only small group decided about suppliers? Does end product specification allow enough potential for supplier competition (costly or marginal components on product structure)? Could we standardize our needs? Re-determination of the need and specification changes may lead to surprisingly big cost advantages (Iloranta & Pajunen-Muhonen et.al, 148).

Recognizing opportunities and Innovating

If the organization wants as many ideas and innovations for use of the strategy creation, it uses the most valuable source for generating ideas, personnel. Brainstorming teams shall think, what can be done better, where we can improve? What are our opportunities? Kraljic's matrix and SWOT analysis are good tools for recognizing the opportunities (Iloranta & Pajunen-Muhonen et.al, 148-149).

Sketching the category strategy

On the basis of the analysis and ideas, a sketch of the category strategy can now be made. The sketch is still an operational model which guides the procurement team. After collecting data and acquiring experience of the performance of the strategy, final

decisions about the validity of the strategy could be made (Iloranta & Pajunen-Muhonen et.al, 149).

Finding suppliers, getting familiarized and evaluating

To be able to find the best suppliers from the market, searching has to be continuous. It takes time to compare suppliers and even more time to find the best ones from the market. Due to this fact it is important not to underestimate the value of the produces of this stage.

Good supplier relationships secure the position to receive the best products or services from markets. Developing mutual relationship is useful and it gives the supplier message that it is respected and trusted.

Supplier's capability for supplying has to be evaluated. It can be done for example by auditing, interviewing and getting acquainted with the economic status (Iloranta & Pajunen-Muhonen et.al, 149).

When the category strategy is fully finished with its every part, the implementation process starts. Category strategy succeeds as well as it has been implemented. Targets and goals have to be clear and the whole organization, involved with purchases have to be informed and trained.

When results can be measured, the strategy has to be evaluated. How well has it succeeded? Even though the validity of the strategy may be up to five years, the follow-up schedule shall be planned constantly. Checkpoints and mean targets should be positioned.

Re-thinking the validity, accuracy and performance shall be done regularly. The strategy has to be created for serving the organization also in a turbulent environment and therefore it has to be created adaptable and it must be possible to make modifications whenever needed (<http://www.logistiikanmaailma.fi/wiki/Tiedosto:Kategoriastrategia.png>).

4.4.1 ABC Analysis

ABC analysis, also called Pareto principal is a tool for categorizing the importance of each purchased article.

The main founding of Mr. Pareto was is that a small amount of a group usually forms the majority of costs. His research showed that the most common ratio for the group and the cost is 20% and 80%. This means that 20% of the number of the total group form 80% of the costs. For example 20% of the number of purchased articles form 80% of all costs (Lambert & Stock 2001, 256).

Letters are the classes of importance in Pareto's example.

- Letter A is the most important class. Usually it means 5% of the articles form 50% of purchases.
- B means a significant or important class. In numbers it is 15% of the articles form 40% of purchases.
- Letter C is a less important class. Even up to 80% of the articles form usually only 10% of purchases.

This example tells that the breakdown is in many cases 80% - 15% - 5% between the classes.

The main point of this tool is to help categorizing articles by the significance. By analyzing for example raw material purchases, purchasing can put efforts on reducing costs of the group that creates the majority of the costs (Iloranta & Pajunen-Muhonen et.al, 481-482).

4.5 Following and Measuring Performance of Procurement

Today each organization has some kind of resource planning system. Mostly it is called ERP (Electronic Resource Planning) system. When an organization acquires information about the procurement process, it will be sourced from organization's planning system. If the system has been designed for serving procurement as well, all the areas that need to be monitored, can be stored into the system.

Basic information of operations is stored and analyzed in Resource planning system. By the material that the system gives, operations driving indicators can be formed and classifications determined.

When classifications are determined and indicators have been created, it is possible to form a monitoring system with which the organization can lead, set targets and evaluate the performance of procurement (A. Aminoff et.al, 5-6).

4.5.1 Monitoring

According to VTT's (Valtion tieteellinen tutkimuskeskus) research (Research report NRO TAU B024), monitored areas of procurement are:

- Nomenclature (article code, class, importance, price etc.)
- Suppliers (supplier code, class, type, location etc.)
- Quotations and contracts (RFQ type, contract terms etc.)
- Purchase orders (Order type, purchasing method, delivery term etc.)
- Material flow (supplies) (flow type, volume, time etc.)
- Storages (location, ownership, number of storages etc.)
- Payment transactions (payment terms, volume, payment method etc.)
- Operations (type of operation / task, expenses etc.)
- Operating expenses (investments, rents, cost type etc.)
- Operating environment (demand, competitors, currencies etc.).

These areas are not involved in every organization's monitoring system. Each organization has to decide which ones are the most important and suitable ones for its needs.

The main task of the monitoring system is to produce information about operations between the client and supplier (A. Aminoff et.al, 5-13).

4.5.2 Measuring

According to VTT's (Valtion tieteellinen tutkimuskeskus) research (Research report NRO TAU B024), the main task of measuring is to give information about the status of the process in a clear and illustrative form and address development areas of the process. According to the report, measuring also helps in notifying trends and changes and in enabling the creation and introduction of guidance methods.

According to the report, meters can be used for several different purposes:

- For guiding
- For planning
- For controlling
- For alarming
- For diagnosing
- For learning
- For informing
- For rewarding the personnel.

And the following points have to be determined before it's possible to introduce the meters:

- the person in charge
- the print-out form of meters
- to whom and how often will be reported
- who is taking care of calculation.

To be able to evaluate the meter, target value, critical limit value and principal, rules have to be set. It is necessary also to decide who will be responsible for modifying the target values (A. Aminoff et.al, 15-16).

The meters are the same as indicators in the report's case

- Nomenclature (purchase value per article, ABC class etc.)
- Suppliers (active or passive supplier, service level, purchases in € etc.)
- Quotations and contracts (The amount of RFQ's, time spent on making RFQ etc.)
- Purchase orders (purchase value per purchase order, amount of positions on purchase order etc.)
- Material flow (supplies) (purchase value of turnover, value of imports etc.)

- Inventories (Inventory value of total purchases, inventory value per article etc.)
- Payment transactions (purchase value per invoice, time consumed between receiving and accepting purchase invoice etc.)
- Operations (working hours share into different operations etc.)
- Operating expenses (costs per order position and order, costs per active article purchased etc.)
- Operating environment (Currency fluctuations, competition and its changes etc.).

Besides the ones listed, there are important aspects that shall be taken into account when planning meters and measured factors. In developed procurement organizations it is possible to measure also co-operation between other operations of organization, procurement organization and system, procurement budget and the validity of it, creative operation, strategy development and planning and predicting (A. Aminoff et.al, 17-21).

The role of procurement has changed and its strategic role has become more important. Due to the fact that the co-operation has increased inside the whole supply chain, challenges have increased as well what comes to setting meters and measuring the process (A. Aminoff et.al, 21)

4.6 Supportive Tools of Procurement

To be able to optimize inventory levels and secure material availability, purchasers and procurement team shall plan purchases by exploiting models for inventory management. With exact research and calculation, it is possible to achieve low inventory cost and fast cycle time of raw materials.

4.6.1 Safety stock

To be able to know what amount of material on stock is enough to guarantee the availability of the material while new material arrives, safety stock calculation has to be done.

There are several factors be taken into account:

- What is the standard deviation of usage during the lead time of the new material?
- How sure we want to be that the stock will be replenished on time?
- How much does consumption vary on average?
- What is the lead time?
- How much does the lead time vary?

If Standard deviation of usage during lead time is not known, it shall be calculated.

Equation 1. Standard deviation during lead time

$$\sigma = \sqrt{LT}((Sd^2) + (S^2))$$

(14A Supply Chain Management Course material, Chapter 8 Managing uncertainty
21.3.2014, 1 / Bowersox 1996)

Where

σ = standard deviation of consumption during the lead time

LT = lead time

Sd = standard deviation of consumption (daily or weekly deviation)

S = Material usage (daily or weekly usage)

An example of calculating standard deviation of usage during lead time

LT = 1,5 weeks

Sd = 300 units

S = 45 units

$$\sigma = \sqrt{1,5}((300^2) + (45^2)) = 371,53 \sim 372 \text{ units}$$

Equation 2. Safety stock (SS)

$$SS = Z \times \text{standard deviation of lead time} = Z \times \sigma \sqrt{LT}$$

Where

SS = Safety stock

Z = Fractile of Gaussian Distribution

σ = standard deviation of lead time

LT = Lead time

(<http://www.wiley.com/legacy/wileychi/waters/supp/Equations.pdf>, 5)

An example of how to determine Safety Stock

1. Let's think that we want to be 97% sure that the material will not run out before the new material arrives (Z)
2. Let's think that the lead time is 4 weeks (L)
3. Let us use the average deviation of the usage from the previous example ($\sigma = 372$ units)
4. Let's determine the consumption for the lead time to be 800 units (R)
5. Let's think that the variation of lead time is as high as 1,5 weeks S_{LTD}

Z was determined to be 97% → check equivalency form the Gaussian Distribution chart. In this case it equals to 1,88.

Result

$$SS = 1,88 \times \sqrt{4} \times (372^2 + 800^2) \times 1,5^2 = 4975,9 \text{ units}$$

As seen, when all the factors show great unpredictability, the need for keeping high stock is apparent.

If we take another example to prove the decrease of stock quantity, let's decrease the lead time by one week into one and decrease the average deviation down to 150 units.

Simulating the example:

$$SS = 1,88 \times \sqrt{3} \times (150^2 + 800^2) \times 1,5^2 = 3975,6 \text{ units}$$

By decreasing on lead time by one week and by splitting the deviation, the Safety stock decreases by 25%. This example also shows that when you are able to negotiate better lead times in general, you clearly save stock space and tied-up capital.

Calculated safety stock parameters help to optimize the stock value and they should be calculated to each raw material on the stock. When this determination has been done, it's easy to calculate further values for optimizing the raw material flow.

4.6.2 ROP (Reorder Point)

Classic material management tool for purchasing is the calculation of Reorder point. ROP tells when it's the latest time for replenishment of raw material to avoid shortage of the stock. For calculation of accurate ROP, historical data has to be available. ROP calculation is used especially when the replenishment cycle is unstable.

It is possible to calculate ROP by predicting the key values, but after a while the values shall be updated to achieve the best possible result.

For ROP determination, these key factors have to be known:

- Safety stock: the minimum quantity of material on stock that is enough to serve the needs while the replenishment has been made
- Lead time: the time for the material to arrive in warehouse
- Usage: how much is the estimated use of raw material during the lead time.

Equation 3. Re order point (ROP)

$$R = SS + DL$$

Where

SS= Safety Stock

D = Daily usage or demand

L = Lead Time in days

(<http://www.businessbee.com/resources/operations/how-to-optimize-your-inventory-system-with-the-reorder-point-formula/>)

An example of ROP determination

1. Let's use the lower Safety Stock value 3975,6 from previous example (SS)
2. Daily usage / demand could be 170 units
3. Lead time in days could be 17

$$R = 3975,6 + 170 * 17 = 6856,6 \text{ units}$$

Yet the daily usage is rather low in this example, high safety stock raises ROP into high level. When the safety stock level has been optimized to a low level, it naturally reduces the need for ordering when the stock is still high and the cycle time of raw material stock speeds up.

ROP method tells how you can hold the inventory until it's really time to make the order without facing a shortage, if nothing unforeseen happens, such as Force Majeure (uncontrolled event) due to a catastrophe or accident.

5 NEW PROCUREMENT STRATEGY

When the decision of creating procurement strategy was made, the first thing was to plan the creation process as a project. As always, the project has a start and an end. In the beginning there is a determination stage and in the end there is a goal. In this case it was decided that the goal was an accepted procurement strategy.

Many milestones in improving procurement had already been reached at the point when the determination of goals started. The biggest milestone was reached when bigger scale supplier changes were made by controlled manner. If this change had not been made, it would have been perhaps the main focus of the strategy.

Luckily only a few weaknesses were found from the process. The most severe weaknesses were determined to be the targets of the strategy.

Due to the fact that the biggest focus was not needed to be on cost savings, it was possible to focus on other important areas of procurement, securing the availability and continuity. Especially in middle sized organizations, this area has been experienced as less important, hence it is one of the most important areas of procurement.

When the goals and targets were set, it was time for planning how to achieve the targets and evaluate the targets again. The research method was chosen and acquiring material could finally start.

5.1 The Creation Process

The process itself was clear. As the majority of processes, procurement strategy creation was started by determining the targets or goals. The strategy should not be hacked into stone and there should be a possibility for modifying it.

The creation process of procurement strategy for Scantarp was implemented based on the instructions found from literature and the internet. A lot of information was available and it was exact. There were many good books of procurement available and the writers were mainly professionals in procurement.

5.2 Targets

Targets were set for all three levels of procurement: operational, tactical and strategic level and the target determination was based on earlier experience and knowledge. Targets were set to be reached at least during validity of the strategy, or earlier. The time frame is long enough and for some targets not too long.

At the *strategic level* the main target was to focus on securing raw material availability. Bottleneck products were recognized that may have had only limited number of suppliers, product availability was limited or the supplier's reliability was recognized to be poor. It was targeted to minimize the quantity of bottleneck products, or even eliminate them. This time the bottleneck product categorization was limited to availability only. In the future it is possible to make further validation after the availability has been secured.

The secondary target was to ensure efficient procurement even on exceptions. Due to rather flat organization structure, it was highly important to ensure the continuity of efficient procurement if current procurement personnel would have been inhibited. Tacit information existed and now it has been stored.

A supportive tool for performing efficient procurement was created. This tool ensures optimized inventory and secures material availability even under a high variation of demand. The tool is based on ROP (Re-Order Point) and SS (Safety Stock) determination.

At *tactical level* the main target was to strengthen the current market position of Scantarp in the specific market area. This target was to be reached by finding new and innovative raw materials for developing current end products. Research of material availability was done and the implementation could start.

At *operational level* the main target was to develop operational procurement by decentralizing operational procurement actions. Deploying decentralized procurement requires supply contracts with suppliers. The most obvious contract type would be pull-controlled purchasing contract. This option reduces the total cost (TCO) of procurement by decreasing actions made when ordering.

5.3 Situation Analysis

To understand the current status of the organization, it was essential to make a situation analysis. With SWOT analysis it was possible to identify the strengths, weaknesses, opportunities and threats of Scantarp's procurement process. SWOT also determined what assisted the organization in accomplishing the objectives and what had to be defeated to achieve the targets. With the results of SWOT analysis, it was possible to create Operations model for strategy.

When breaking down results, Strengths were found most. Next came Weaknesses, third biggest category was Opportunities and the last was threats.

Speculation of the results was made to answer the questions.

What Strengths can we develop further?

What Weaknesses can we eliminate?

What Opportunities can we exploit?

What Threats can we tackle?

By answering the questions, it was possible to collect all the crucial data and make the decision where to focus on in the strategy (https://en.wikipedia.org/wiki/SWOT_analysis).

5.4 Development Stage of Procurement Strategy

When the analysis was made, it was possible to develop procurement strategy.

The developing stage consisted of three sub-stages: definition, prioritization and determination.

Definition

At definition stage, key elements were determined. It was decided that the key elements would be:

- Inventory management
- Securing the availability
- Operative purchasing development
- Supporting sales with new materials.

Identification

At this stage the factors for achieving strategic goals were determined. Plan for implementing was created.

Priorization

At priorization stage all the important things were left and not that important were thrown away. At this point the performance evaluation of each factor was accomplished and categorization of these factors were done.

Shaping the strategy

The strategy started to shape little by little. The link and parallelity to company's strategy were verified from Management and organization's strategy.

Implementation

Some of the implementation work was done already during the creation of the strategy. In order to start collecting data from the beginning, results of ABC analysis were stored into ERP system while making the ABC analysis.

The real implementation of the strategy was started at the end of April 2016. The implementation continues in August 2016 fully when all the crucial data has been collected from other parts of the organization.

The personnel has been informed about the existence, targets and validity of the strategy. It is aimed at reaching the targets together with the whole organization. Management has committed to support the change, which tells that procurement strategy has been accepted and taken seriously. The whole organization is involved in the implementation and it benefits from the targets achieved.

Learning and improving

After implementing procurement strategy in the autumn 2016, the final stage of creation process could start. At this final stage, the performance of the strategy will be measured and success in achieving targets will be evaluated. To be able to learn from the results

and improve the process on the basis of the results, evidence has to be collected carefully.

The performance of the process will be evaluated with meters that indicate how well the availability of raw materials has been secured and how well the continuity of effective procurement has been ensured. Data analysis shall be made together with persons from each sector of the organization (R&D, Management and sales) and results shall be communicated to the whole organization.

Balanced Scorecard will be studied and considered as an option for the analysis. This tool also tells how to reach the target if it has not been reached yet.

Learning and improving will carry on as long as the strategy is valid.

6 CATEGORY STRATEGIES

The categorization of raw materials has been made rationally at Scantarp. There are three main raw material categories that divide materials by the end-use. Categories have their own prefixes what comes to coding and therefore it is easy to collect data from the system. Due to this, reports can be produced more easily when each category can be identified with with unique coding. Two of these categories are used in coating production and since these two form the biggest portion of all direct purchasing costs, it was clear that these two categories shall be the first ones to be taken into the strategy.

6.1 Steps of Creation Process

There are seven steps in this process.

- Category determination
- History analysis
- Recognition of supplier markets
- Re-thinking needs
- Innovating and recognizing the opportunities
- Sketches of category strategies
- Supplier sourcing, familiarization and evaluation
- Implementation, following and re-thinking.

When the targets were listed, the best ones were picked from the list. For sure there were some alternatives. Alternatives were gone through once again and the decision of continuing with previously chosen ones was made.

Since the determination of categories was already done, it was easy to focus on starting the analysis stage. The analysis was actually made at the same time as SWOT analysis.

Due to available data on ERP system, finding all the necessary historical information was easy. What comes to tools available for the analysis, it was decided that focusing on ABC analysis was enough for implementing the right kind of strategy for the two main raw material categories chosen. The results of ABC analysis can be found on the following page 42 under the header: Results of ABC analysis.

This time the main focus was on securing the availability and minimizing or eliminating the uncertainty. The chain deciding about new suppliers is short and therefore current suppliers have been picked up together with R&D. The cost level has been investigated from the start and therefore there was no need to analyze the decisions of R&D department's supplier choices or cost structure of the end product.

The opportunities were recognized by SWOT analysis. Eight opportunities were found that strive category strategies into success. These opportunities are valid on both, the whole procurement and category strategies. In large organizations brainstorming across other units would be beneficial for gathering as much information and views as possible.

After gathering all the data together, it was possible to sketch category strategies. The operational model created is guiding procurement to focus on targets that were set to each category.

Scantarp has a strong supplier base already. Sourcing and contacting new supplier candidates for eliminating bottleneck raw material will start in May 2016. The recognition was done when visiting trade fairs, exploring the internet and by reading publications. Supplier markets are abroad, which is usual today. There are only a few producers in Finland that produce materials that could be used on PVC coating production.

When the plan for eliminating bottleneck products will be done together with R&D department, it is possible to source the right partners to overcome the situation where the production may stop due to lack of raw material. This stage will follow in August 2016.

The implementation of category strategies has been started at the end of April 2016. Responsibilities are shared with R&D and sales to achieve the common targets. Sales will collect all the information needed from markets and procurement and R&D work together to reach the targets set for them.

Within some time it is possible to analyze results of the following stage and proceed on re-thinking the strategies missions.

Evaluation of success will be done by the meters set. Due to confidential nature of targets of each category, the meters cannot be revealed. What can be said is that the meters indicate the performance of sourcing capability of procurement.

6.2 ABC Analysis

To be able to categorize main raw materials of coating process by importance, it was necessary to analyze the purchasing history article by article. Usage and pricing history were revealed and stored. The history data was easily available from Scantarp's ERP system and the results were saved into two excel sheets.

There are two main categories of raw materials used in coating process. In 2015 Category 1 formed 53,8% and Category 2, 34,4% of the value of all direct purchases.

The two main categories differ mainly from a number of articles. The difference in the total number of categories existed, but compared to the number of articles it was rather small. Therefore the distribution of the number of articles causing 80% of costs was quite big between these two main categories.

6.2.1 Results of ABC Analysis

Results of the analysis were quite expected. This was due to personal experience of the articles cost and volumes. The analysis was useful and it gave interesting historical information about raw material purchases.

Category 1

Number of articles: 128

A: 19 articles = 15% of articles form 82% of costs

B: 22 articles = 17% of articles form 13 % of costs

C: 87 articles = 68% of articles form 5% of costs

In addition to this, two main articles form 58 % of all costs in this category 1.

Category 2

Number of articles: 18

A: 6 articles = 33% form 78% of costs

B: 3 articles = 17% form 17% of costs

C: 9 articles = 50% form 5% of costs

When there are more articles, the importance of single raw material in the category is smaller. In Category 1 the traditional Pareto share is closer to what's predicted.

Category 2 consists of fewer articles than Category 1. It can be seen that A and B class articles are not far from each other what comes to costs.

Even though there is a certain number of raw materials and the ones that are on the tail of C class, it does not mean that they are not needed. Some raw material may have a big purchasing volume in quantity, but the material can be cheap and therefore it does not play a big role in costs.

After categorizing the articles, the focus could be targeted on materials in these main classes. A, B and C classes were stored into ERP system for each article.

6.3 New Category Strategies

Category strategies for the both raw material groups were created to guide procurement to purchase the right articles in the right way. The category strategies contain information and instructions for operative, tactical and strategic purchasers. They give information about the raw material groups themselves and tell what, from whom and where and how to purchase. Both strategies are following the same basic principles and instructions but as the materials are different, each category has its own perspective on purchasing.

The purchasing process differs between these two categories. It is necessary to plan raw material purchases of group 1 at least three months ahead to be able to secure the availability and the group 2 materials can be purchased even by spot-order principle. This separation of these two categories determined how much information about operative purchasing had to be included in strategies.

The analysis produced a lot of very important and useful information about each article's purchasing history, significance and availability. ABC analysis and ROP (Re Order Point) and SS (safety stock) determination produced data that was stored to ERP system. Each category's materials have been classified into A, B and C classes and the letter can now be found directly from the system under each article code. ROP (Reorder point) and safety stock parameters have been calculated for all raw materials in group 1 where it was reasonable to do so. Raw materials in group 2 are purchased

based on historical information and forecasts. Lead times are long and therefore the Re-order point and Safety Stock determination was left out of this group.

New category strategies will provide better forecasting and secure the raw material availability. The strategies will guide procurement of purchasing and planning purchases. Strategies guide procurement on operational, tactical and strategic levels.

7 CONCLUSIONS

The main objective of this thesis was to create a procurement strategy for Oy Scantarp Ab, including two category strategies for main raw materials of the coating process. The secondary objective was to find all the existing instructions related to procurement and create one document type consisting of all relevant data and information. Therefore it was decided to gather all the existing documents and instructions to be found from one source and link them into the strategy.

The thesis topic matched the needs of Scantarp's current situation. This was because there was no written strategy. Though the written strategy was missing, procurement had already been performed right on all the levels (operational, tactical and strategic level). It was advised that the procurement at Scantarp should be performed according to ISO standard requirements. Therefore there were a lot of instructions and descriptions already available.

Existing information on ERP system helped collecting and analyzing data and personal experience of purchasing at Scantarp eased up the process furthermore.

Writing this thesis was a very useful and educational process. The literature available was very interesting and the knowledge this study brought is helping to develop purchases at Scantarp and as well as the author himself as a purchaser in operational, tactical and strategic level.

As a result, a procurement strategy, including two category strategies was created and accepted by the management. The strategy was finished in April 2016 and implementation started right after finishing the strategy creation process.

The validity period of the strategy is five years because the strategy requires some resources from R&D department and therefore it was necessary to use a realistic time frame for achieving the targets.

Even though the validity period is rather long, there are separate annual themes that will be set for each year. This theme recommendation of procurement is one of the renewals of ISO 2015 standard. It finally suggests that procurement should be considered as a process.

The intention in the future is to expand the strategy by making it serve all the direct and indirect purchasing at Oy Scantarp Ab. Indirect purchases play a big role of company's costs and I believe there is a big potential for savings in this category.

REFERENCES

Eskola & Suoranta. Johdatus laadulliseen tutkimukseen 1998

Hankintojen Johtaminen – Ostamisesta toimittajamarkkinoiden hallintaan. Kari Iloranta, Hanna Pajunen-Muhonen 2008

Hankintojen Johtaminen – Ostamisesta toimittajamarkkinoiden hallintaan. Kari Iloranta, Hanna Pajunen-Muhonen 2012

Heikkinen Hannu L.T. & Jyrkämä Jyrki. Siinä tutkija missä tekijä 1999

<http://www.wiley.com/legacy/wileychi/waters/supp/Equations.pdf>

https://en.wikipedia.org/wiki/SWOT_analysis

<http://www.scdigest.com/ontarget/13-02-06-2.php?cid=6699> (CAPS Research, 2012)

<http://balancedscorecard.org/Resources/About-the-Balanced-Scorecard>

<http://www.businessbee.com/resources/operations/how-to-optimize-your-inventory-system-with-the-reorder-point-formula/>

Lambert & Stock 2001, Strategic Logistics Management

Leading Procurement Strategy, Driving Value Through the Supply Chain. Carlos Mena, Martin Christopher, Remko van Hoek

Procurement Principles and Management. Baily, Farmer, Crocker, Jessop and Jones

Reinecke et al. 2007

Strategic procurement and supply chain management. Baily, Farmer, Crocker, Jessop and Jones (10th edition)

VTT report NRO TAU B024, Hankintatoiminnan seuranta ja mittaaminen 2002, A. Aminoff

14A Supply Chain Management Course material, Savonia University of Applied Sciences / Pyysalo, Chapter 8 Managing uncertainty 21.3.2014, 1 / Bowersox 1996

<http://www.scantarp.fi/en/tuotteet/manufacturing/>

<http://www.scantarp.fi/en/tuotteet/defense-and-security/>